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CHAL-0533
Copy 3 of 5.

21 January 1959

MEMORANDUM FOR : Deputy Director (Plans)

SUBJECT : Recommendations Resulting from Meeting
of Col. Burke with []
of Pratt & Whitney on Growth of J-57

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1. I outlined to [] the tentative conclusions resulting from the intercept tests recently run against the U-2, highlighting the value of additional altitude and indicating an opinion that the only dramatic improvement any of our staff could see was in the area of greater thrust at altitude. This in turn revolved around turbine inlet temperature and exhaust gas temperature.

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2. [] stated that the increase in EGT of 100 degrees would give only a 60 pound increase in thrust; however, if better materials were available for inlet guide vanes, etc., to permit higher turbine inlet temperatures, an increase of the order of 1,000 to 1,500 feet might be gained. He further stated that the materials are now available and that within a relatively short time components for two engines would be available on an experimental basis at quite a low cost. These in turn could be used for flight test purposes to determine altitude thrust and therefore altitude gain.

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3. I advised [] that 1,000 to 1,500 feet gain in altitude would be a significant increase and would undoubtedly sharply decrease chances of successful interception. We therefore would be interested in a test proposal which could lead to retrofit of operational aircraft, particularly if cost was not significant.

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4. [] stated that he would look into the matter and try to arrange to have the necessary test pieces installed in two of the engines in for rework. The only cost would be the project's gamble that a couple of engines might be lost in tests due to temperature problems.

5. I made no specific commitment, but I recommend:

a. That we accept an additional 1,500 feet altitude as a significant improvement.

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b. That we approve fitting a couple of test engines with higher temperature materials, if cost is negligible and if the only gamble is possible engine loss during test.

c. That if tests prove successful, new engines and reworked engines should include the new high temperature components.

SIGNED

WILLIAM BURKE
Colonel, USAF
DPD-DD/P

APPROVAL:

Recommendations in para. 5
are approved

See Chal 0492
Deputy Director
(Plans)

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